

of Daily Living (ADLs) were positively associated with more advanced stages of neuropathy and accounted for 59.66% of variance. Factors two (Symptoms), four (Autonomic Neuropathy) and five (Small Fiber) did not show a significant association with neuropathy stages. Regression with all five factors had R-square of 0.28, replicated across both regression methods. **CONCLUSIONS:** The five resulting factors from the analysis of the German translated QOL database, matched those from the factor analysis using the original English version of the Norfolk QOL-DN in a European study. Two factors, Functional Status/Large Fiber and (ADLs) were positively associated with more advanced stages of neuropathy.

## PDB42

**ESTIMATING THE EFFECT OF SYMPTOMS OF DIABETIC PERIPHERAL NEUROPATHY AND DIABETIC RETINOPATHY ON QUALITY-OF-LIFE USING DATA FROM THE 2001–2002 NATIONAL HEALTH AND NUTRITION EXAMINATION SURVEY**

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**OBJECTIVES:** To evaluate the effect of symptoms of diabetic peripheral neuropathy (SDPN), diabetic retinopathy (DR) and co-morbid SDPN & DR (COMORB) on the Healthy Days Core Module (HRQOL-4) measures of the CDC, among US adults  $\geq 40$  years old with diagnosed diabetes, using the 2001–2002 National Health and Nutrition Examination Survey (NHANES). **METHODS:** Logistic and ordinary least squares (OLS) regression models were used to assess the impact of SDPN, DR and COMORB on HRQOL-4 measures. Included in the analysis were 429 NHANES respondents  $\geq 40$  years old classified as having diagnosed diabetes. Model covariates included age, gender, race, education, current smoking status, currently asthmatic, and history of cardiovascular disease, cancer, arthritis, COPD, hypertension and stroke. The conditions of interest were assessed based upon respondent self-report. All estimates were generated using Stata statistical software, and accounted for the complex survey design of NHANES. **RESULTS:** Using the 2001–2002 NHANES, we estimated that, among US adults  $\geq 40$  years old with diagnosed diabetes, those with SDPN (OR = 7.66; 95%CI = 2.90, 20.23), DR (3.43; 1.53, 7.69), and COMORB (5.43; 2.32, 12.73) were all more likely to report that they were currently in poor health, compared to those without the condition of interest. Additionally, OLS models suggest that those with SDPN had a significantly greater number of days during the past month in which their physical health was not good, compared to those without SDPN. SDPN was also associated with a significantly greater number of days during the past month in which poor physical or mental health limited usual activities. **CONCLUSION:** Among US adults  $\geq 40$  years old with diagnosed diabetes, SDPN, DR, and COMORB all appear to have a significant negative effect on quality-of-life. Future therapies that offer relief of these conditions may have considerable humanistic benefits.

## PDB43

**ASSOCIATIONS AMONG VISUAL IMPAIRMENT, STAGE OF DIABETIC RETINOPATHY AND QUALITY OF LIFE (EQ-5D)**

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**OBJECTIVES:** The quality-of-life impact of diabetic retinal disease progression has not been studied using internationally

standardized measures. We undertook an examination of the relationship between visual impairment, stage of diabetic retinopathy and quality of life. **METHODS:** In 2003, we mailed a questionnaire containing the EuroQol (EQ-5D) quality of life instrument to a random sample of Kaiser Permanente members with type-2 diabetes. Of the 2376 patients (59%) who completed the questionnaire, 155 patients had an eye exam with an ICD-9-CM diagnosis of nonproliferative or proliferative retinopathy (NPDR or PDR) during the first six-months of 2003. After visual acuity (VA) data had been removed from the text of the electronic medical record notes, one of us (CM) staged the retinopathy in these patients by applying the American Academy of Ophthalmology's (AAO) International Diabetic Retinopathy Severity Scale to the notes. A different reviewer abstracted best-corrected VA in each eye from unmasked notes. Analysis was based on the better-seeing eye. **RESULTS:** We obtained complete data for VA, EQ5D, and AAO staging in 99 eyes with better acuity. Patients who suffered impaired visual acuity (VA  $\leq 0/40$ ) reported a generally worse quality of life than patients without impairment (VA  $> 20/40$ ). For those with least severe NPDR, the median EQ5D scores were 0.73 (25th and 75th percentile 0.62, 1.0) among those with no visual impairment, compared with 0.69 (0.69, 0.8) among those with visual impairment. For those with the PDR, the median EQ5D scores were 0.66 (0.62, 0.80) among those with no visual impairment, compared with 0.52 (0.13, 0.73) among those with impaired VA. Among patients with normal visual acuity, we observed a graded negative relationship between diabetic retinopathy progression (AAO stages) and median EQ-5D scores. **CONCLUSION:** A generally decreasing quality of life is observed with more impaired VA and more severe stages of diabetic retinopathy.

## PDB44

**IS DIABETES KNOWLEDGE ASSOCIATED WITH HEALTH-RELATED QUALITY OF LIFE AMONG ENGLISH-SPEAKING SUBJECTS WITH DIABETES IN SINGAPORE?**

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**OBJECTIVES:** To evaluate if diabetes knowledge is associated with health-related quality of life (HRQoL) among English-speaking subjects with diabetes in Singapore. **METHODS:** English-speaking subjects (aged  $> 21$ ) with self-reported diabetes mellitus were recruited by convenience sampling at a public event organized by Diabetic Society of Singapore to commemorate World Diabetes Day. Correlation between diabetes knowledge (measured using the General Diabetes Knowledge Test (GDKT), range 0–100) and HRQoL (measured using the Audit of Diabetes-dependent Quality of life (ADDQoL), range 0–100; EQ-5D, range 0.594 to 1.00 and the SF-6D, range 0.26–1.00) were studied using Pearson correlation coefficients. The relationship between diabetes knowledge and HRQoL was studied using three separate multiple linear regression (MLR) models with HRQoL scores as the dependent variable and GDKT score as an independent variable while adjusting for age, gender, ethnicity, education, housing type, smoking status and presence of acute/chronic medical conditions and diabetes complications. **RESULTS:** Data from 42 subjects with complete responses were analyzed (mean (SD) age: 53.0 (9.61) years, 45.0% female, 90.0% with  $> 6$  years of education, 64.3% with other chronic medical conditions, 40.5% with diabetes complications). Mean (SD) GDKT, ADDQoL, EQ-5D and SF-6D scores were 33.1 (3.53), 46.9 (18.56), 0.9 (0.15) and 0.8 (0.14) respectively.